



Department of Statistics & Computer Science
University of Kelaniya
Academic Year – 2022/2023
COSC 12043 / BECS 12243 - Object Oriented Programming
Tutorial 03

- Create a Word document with your student number, tutorial number, and course code in the header and page numbers in the footer.
- Save it with your student number as the file name.
- Add your code and screenshots of the outputs, then upload it to the Submission Box on the ekel page.

1. Which of the following variable declarations are correct? If not, state the reason.

- | | |
|-----------------------------------|--------------------------------------|
| a. <code>int result1;</code> | f. <code>boolean isValid;</code> |
| b. <code>double 4value;</code> | g. <code>double final@amount;</code> |
| c. <code>char first-name;</code> | h. <code>String customerName;</code> |
| d. <code>float totalScore;</code> | i. <code>int \$index;</code> |
| e. <code>int class;</code> | |

2. Show the result of the following expressions:

- a. $-5 + 8 * 6$
- b. $(55+9) \% 9$
- c. $20 + -3*5 / 8$
- d. $5 + 15 / 3 * 2 - 8 \% 3$

3. Which of the following programs compile? If not, state the reason.

```
a. class Test {  
    public static void main (String [] args) {  
        System.out.println("Hello world");  
    }  
}
```

b. `class Test {
 public static void main() {
 System.out.println("Hello world");
 }
}`

c. `class Test {
 System.out.println("Hello world");
}`

4. Identify and point out the errors in the following code segments and rewrite the code.

a. `public class Test {
 public static main (String [] args) {
 System.out.println("Hello World Example");
 }
}`

b. `public class Test {
 public static void main (String [] args) {
 System.out.println(10/0);
 }
}`

c. `public class Test {
 public static void main (String [] args) {
 System.out.println("Celsius 35 is Fahrenheit degree ");
 System.out.println((9 / 5) * 35 + 32);
 }
}`

5. Identify what are the variables used in the following code segment.

```
class Product {  
    String productName = "Laptop";  
    static int totalProducts = 150;  
  
    void discountPrice() {  
        double discount = 10.5;  
    }  
}
```

6. The code below attempts to calculate the average temperature recorded over three days. Each day's temperature is a decimal number. The program contains errors that prevent it from working correctly. Identify the errors, explain them, and correct the code so that it functions as expected.

- a. double tempDay1 = 23.5, tempDay2 = 25.3, tempDay3 = 22.8;
- b. int averageTemp = 0;
- c. int day1 = tempDay1;
- d. int day2 = tempDay2;
- e. averageTemp = day1 + day2 + tempDay3 / 3;
- f. System.out.println("The average temperature is: " + averageTemp);

7. What is the output of the following code?

```
a. public class Test {  
    public static void main(String[] args) {  
        int x = 300;  
        System.out.println("x is: " + x);  
  
        byte a = 15, b = 8;  
        byte sum = (byte) (a + b);  
        System.out.println("sum is: " + sum);  
  
        long largeNumber = 987654321L;  
        System.out.println("largeNumber is: " + largeNumber);  
        largeNumber = x;
```

```

        short s = (short) largeNumber;
        System.out.println("largeNumber is now " + largeNumber + " and s is: "
+s);

        boolean flag = false;
        System.out.println("flag is: " + !flag);
    }
}

```

```

b. public class Test {
    public static void main(String[] args) {
        int num1 = 15;
        int num2 = 4;
        int num3 = 30;
        System.out.println(num1 + num2);
        System.out.println(num1 - num2);
        System.out.println(num1 * num2);
        System.out.println(num1 / num2);
        System.out.println(num1 % num2);
        System.out.println(num1 < num2 || num1 > num3);
        System.out.println(num1 > num2 && num1 < num3);
        int max = (num1 > num3) ? num1 : num3;
        System.out.println("Max is: " + max);
        int y = 5;
        boolean isTrue = false;
        System.out.println(y++);
        System.out.println(++y);
        System.out.println(y--);
        System.out.println(--y);
        System.out.println(!isTrue);
    }
}

```

8. Write a Java program that simulates the process of calculating the total score and average score for a student, along with some basic information about the student.
- Declare variables for the student's first name, last name, age, and marks for 3 subjects (Maths, Science, and History).
 - Calculate the total marks and the average marks.
 - Display the student's information, total marks, and average marks as shown below:

Student Information

First Name: John

Last Name: Doe

Age: 20

Marks:

Maths: 85.5

Science: 92.0

History: 78.5

Total Marks: 256.0

Average Marks: 85.33333333333333

- Use single-line comments to explain key parts of the code, and provide a multi-line comment at the start of the program to describe its purpose.
9. Write a Java program to print the following simple bill format using escape sequences:

```
----- BILL -----
Item      Price
-----
Apple     $1.50
Banana    $1.00
Orange    $2.00

Total:    $4.50
-----
'Thank you for shopping!'

"Have a great day!"
```

10. Find the maximum number of given two values using one single line of coding.